Conservation Security Program (CSP) Revised Nutrient Management Guidance[1] for Minnesota Portion of the Blue Earth Watershed

9/29/2004

All items listed on the Nutrient and Pest Management Checklist (June 2004) or on the Blue Earth Watershed CSP Water Quality Requirements handout (June 2004) remain in effect except as follows:

Nitrogen Rates

Non-livestock operations

- Outside of the Fairmont and Mankato Source Water Protection Areas
  - University of Minnesota recommendations with 20 lbs. /ac. deviation **for all crops** except **corn.**

    at

    http://www.mn.nrcs.usda.gov/technical/ecs/nutrient/plant%20nutrient/plantnutrient.htm

    or for a rate calculator

    http://www.agry.purdue.edu/mmp/webcalc/fertRec.asp

  - **For corn** use **either**
    - University of Minnesota recommendations with 20 lb./acre deviation **or**
    - Iowa State University Extension corn recommendations contained in Publication Pm-1714, Nitrogen Fertilizer Recommendations for Corn in Iowa dated May1997[2] http://www.extension.iastate.edu/Publications/PM1714.pdf

- Within the Fairmont and Mankato Source Water Protection Areas
  - Univ. of Minn. recommendations for all crops with acceptable deviation of 20 lbs./acre N.

Livestock operations watershed wide

- Univ. of Minn. recommendations for all crops with acceptable deviation of 20 lbs. /ac. N or 20% of computed N availability from manure.

Phosphorus (P_2O_5) and Potassium (K_2O) Rates

The use of either Univ. of Minn. Extension fertilizer recommendations (publication noted above) or Iowa State Univ. Extension recommendations continues to be highly encouraged (Publication PM 1688 Revised Nov. 2002-General Guide for Crop Nutrient and Limestone Recommendations in Iowa).
http://www.extension.iastate.edu/Publications/PM1688.pdf

However for purposes of this particular CSP watershed, deviations from the Universities' recommendations are allowed as necessary and as follows:

Non-livestock farms (non-manured fields)

Soil Test P Levels of ≤ 10 ppm Bray P1 (7 ppm Olsen); Soil K levels ≤ 80 ppm

- University of Minnesota or Iowa State Univ. Extension fertilizer recommendations (publications noted above) with 15 lb. deviation for an individual year or for each year of the crop rotation (if applied once during the rotation).

Soil Test P Levels >10 ppm Bray P1 (7 ppm Olsen); Soil Test K levels > than 80 ppm

- Total P_2O_5 or K_2O applied should not exceed crop removal rates contained in Table 2 of Iowa State Univ. Extension publication PM 1688 Revised Nov. 2002 for an individual year or for the crop rotation (if applied once during the rotation)[3]. **Note: This option results in applications in considerable excess of Univ. of Minn. or Iowa State Univ. recommendations.**

Livestock farms (manured fields)

- Existing requirements allow manure application based on nitrogen on most fields. This generally results in P_2O_5 and K_2O applications above University recommendations as well as above removal rates.
  - Manure applications on some fields next to surface waters will be based on P_2O_5 removal (in order to comply with state law requirements).

- However commercial fertilizer P_2O_5 and/or K_2O additions are limited to 15 pounds/acre on fields where manure applied on a nitrogen basis results in P_2O_5 and/or K_2O applications in excess of either University of Minn. recommendations or crop removal rates.

Yield Goals

Corn yield goals ≥ 199 bushels/ acre require proof.

Soil and Manure Tests and Analyses

Soil tests up to 5 years old and manure analyses up to 2 years old are acceptable for initial eligibility determinations but not for continued participation (e.g. annual manure tests and use of soil tests no older than 4 years remains a requirement). Both soil and manure samples must be analyzed at MDA certified labs.

Manure Credits

Use of current NRCS-Minnesota/MPCA nutrient availabilities remains a requirement

at

http://www.mn.nrcs.usda.gov/technical/ecs/nutrient/manure/manure.htm

or for a rate calculator

http://www.agry.purdue.edu/mmp/webcalc/nutAvail.asp

[1] *All guidance listed in the above two pages applies to basic CSP eligibility. Participants receiving nutrient management or applicable energy enhancement payments are subject to additional requirements*

[2] *The following table is adapted from ISU Extension publication PM-1714, May 1997, Nitrogen Fertilizer Recommendations for Corn in Iowa. Consult PM-1714 for detail.*

Rates of N usually needed if all N is applied preplant or before crop emergence	
Crop Category	**Pounds of N/Acre**
Corn after Soybeans (no manure)	**100-150**
Corn after Corn	**150-200**
Corn-After Alfalfa Yr 1	**0-30**
Corn-After Alfalfa Yr 2	**0-60**

►Select rates within the ranges based on price outlook, fertilizer price, soil moisture conditions, on-farm testing results and stalk N tests.

►Use rates at the upper end of the ranges when conditions are favorable, lower rates when unfavorable

►These ranges take into account the nitrogen credits.

[3] *The following table is adapted from table 2 in Iowa State Univ. Extension publication PM 1688, Rev. November 2002. Consult PM 1688 for detail.*

Nutrient content of harvested crops used to calculate nutrient removal		
Crop and yield unit	**Pounds per unit of yield**	
Corn	**P_2O_5**	**K_2O**
Grain-Bu	**0.375**	**0.3**
Silage-Bu grain equivalent	**0.55**	**1.25**
Silage-Ton, 65% H_2O	**3.5**	**8.0**
Stover-Ton	**5.9**	**25.0**
Soybeans		
Grain-Bu	**0.8**	**1.5**
Stover-Ton	**2.8**	**9.9**
Alfalfa		
Hay-Ton	**12.5**	**40.0**
Oats		
Oats+Straw-Bu	**0.4**	**1.0**
Straw-Ton	**5.0**	**33.0**